Assemble the Game of Life Kit

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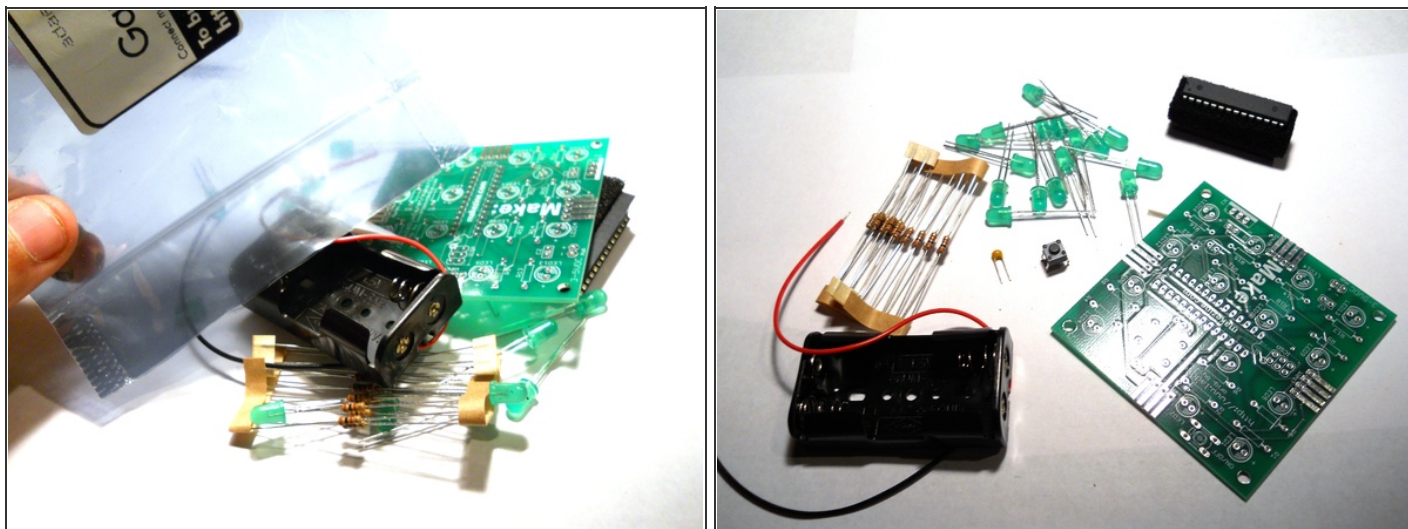
⚙ PARTS:

- Game of Life Kit (1)
- Green 5mm LED (16)
- Microcontroller (preprogrammed when purchased in a kit) (1)
- 28-pin socket (1)
- Ceramic 0.1uF capacitor (104) (1)
- 100 ohm 1/4W 5% resistor (brown black brown gold) (16)
- 6mm tactile switch button (1)
- 2 x AA battery holder (1)
- Circuit board (1)

SUMMARY

Invented by Cambridge mathematician John Conway, the Game of Life is a cellular automation game that is a zero-player game. The evolution of the cells is determined by the initial conditions of the cells.

Step 1 — Gather your Materials

- Open up the Game of Life bag of components and check to make sure that you have all of the necessary parts to assemble the kit.

- Heat up your soldering iron, wet your sponge, and let's get ready to solder the Game of Life Kit!

Step 2 — Insert all of the Resistors
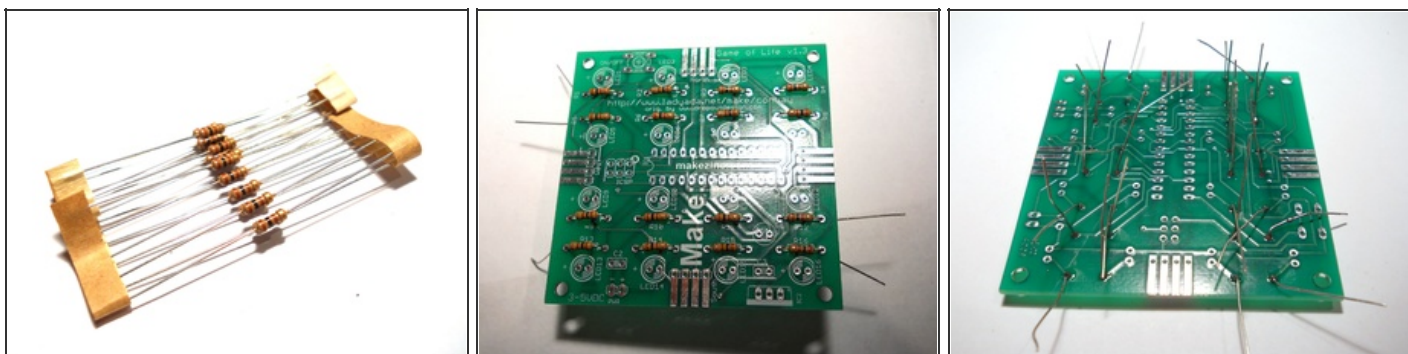
- You have 16 resistors, all of the same resistance.

- In locations **R1** through **R16**, insert the LEDs into the circuit board. Resistors are not polarized, so it does not matter which direction you put them in.

- Solder the resistors in.

Step 3 — Clip the Resistor Leads
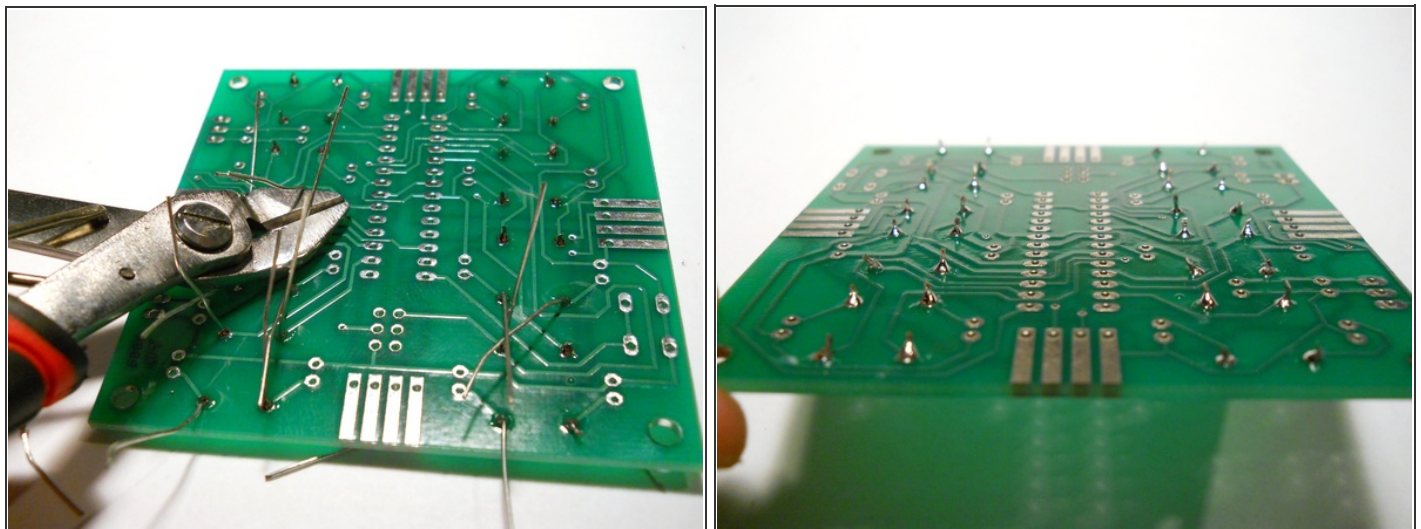
- It is important to clip the leads of the resistors to ensure that there are no shorts in the circuit.
- Be sure to save one of these leads, because we will need to use it soon.

Step 4 — Insert the IC Socket
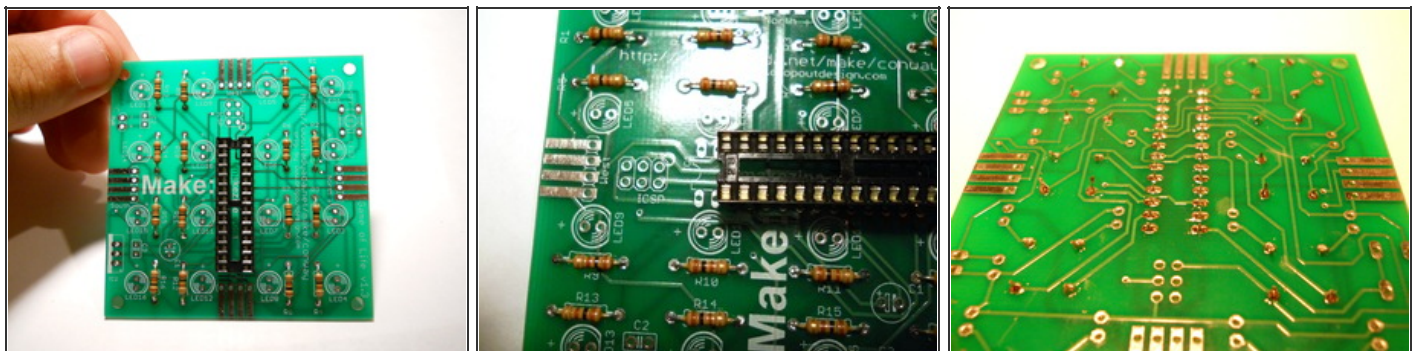
- Note the notch on the end of the socket. Match this up with the notch on the silk-screened circuit board.
- Insert the socket into its holes and make sure that it is flush with the PCB before soldering it in.
- Then carefully solder the socket in, being careful not to bridge any solder pads.

Step 5 — Inserting the LEDs
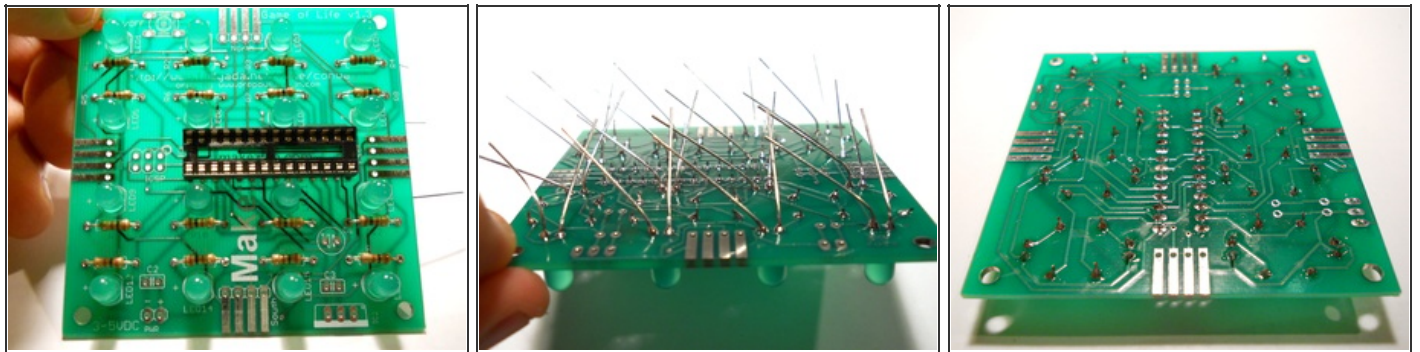
- You have 16 LEDs that you need to solder into the PCB.

- LEDs **are** polarized, so it is important that you insert them correctly. The longer lead on the LED is the "+" lead. The shorter lead, also the side with the flat spot on the LED's case, is the "-" lead.

- Insert all of the LEDs in, and solder them in. Once they are all soldered, clip their leads.

Step 6 — Insert the Ceramic Capacitor
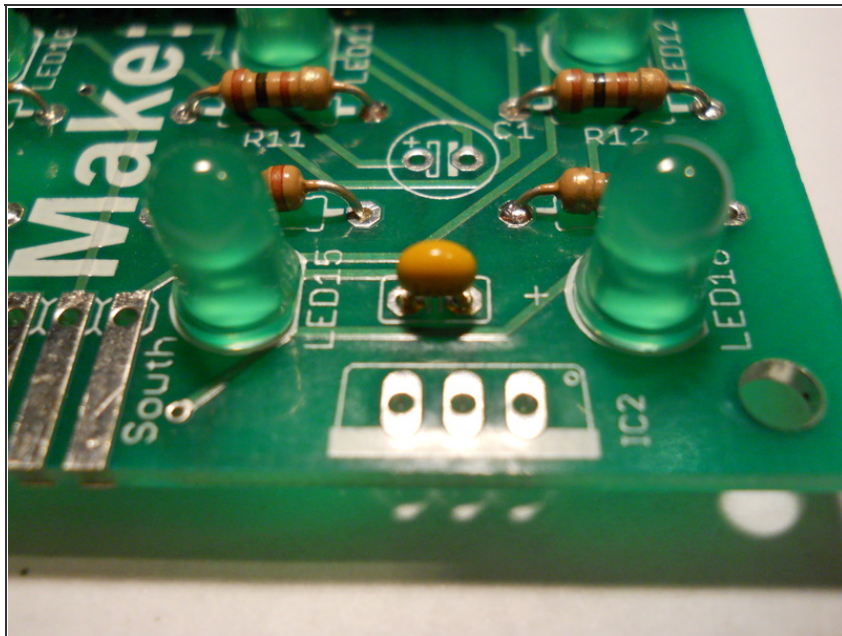
- In location **C3**, insert the small yellow ceramic capacitor.

- This component is not polarized, so it does not matter in which direction you insert it.

- Solder it in and then clip the leads.

Step 7 — Jumping IC2
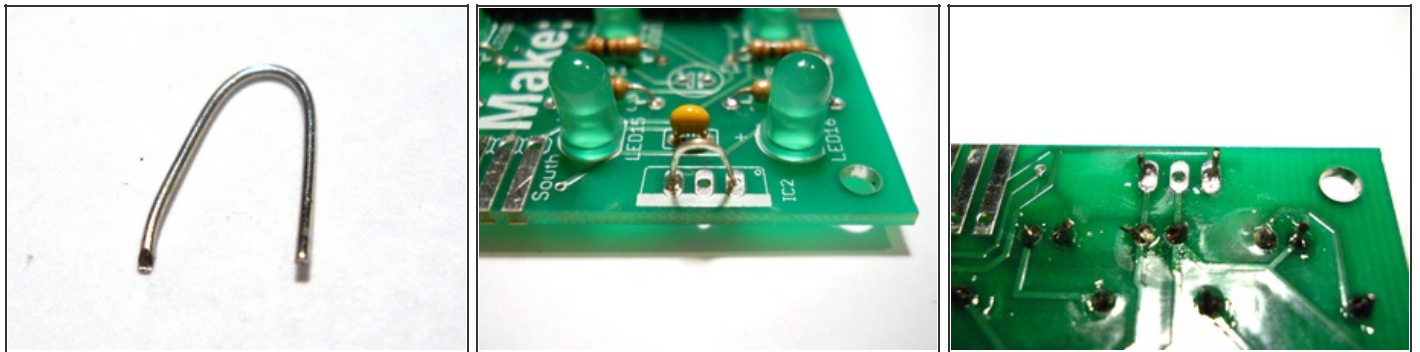
- Retrieve one of the leads you clipped from your resistors.

- Bend it into a staple shape and thread it through the outer two holes in the location **IC2**.
  Refer to the image if you are confused. This is called *jumping* the chip.

- Solder it in and then clip the leads.

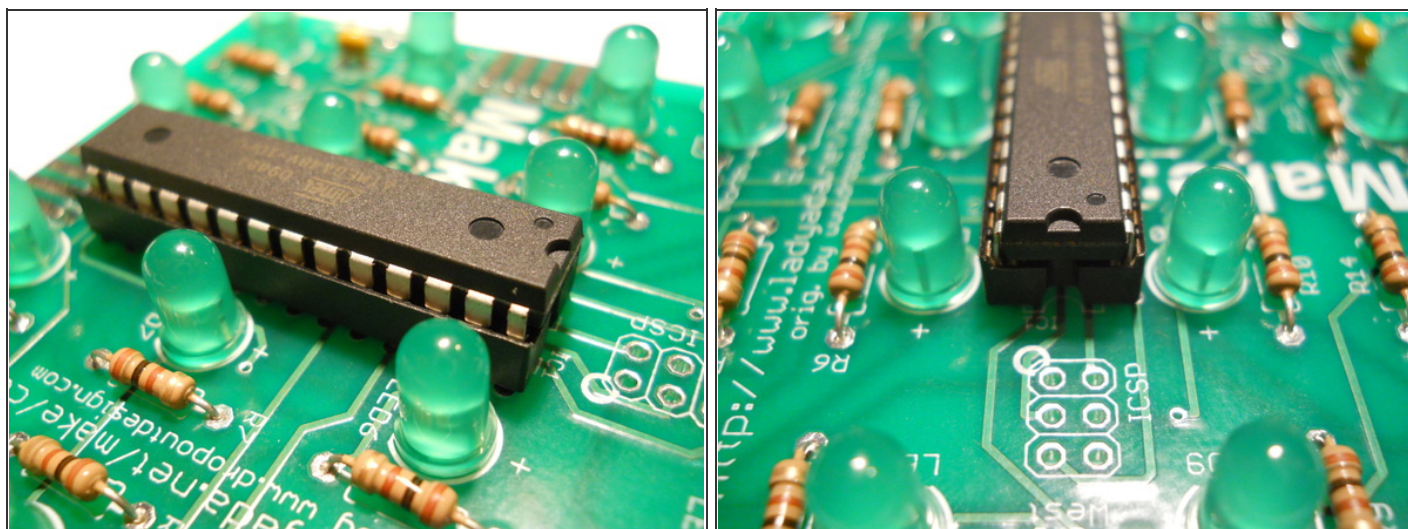- Make sure that the wire is not in contact with the middle pad.

## Step 8 — Inserting the ON/OFF/RESET Button
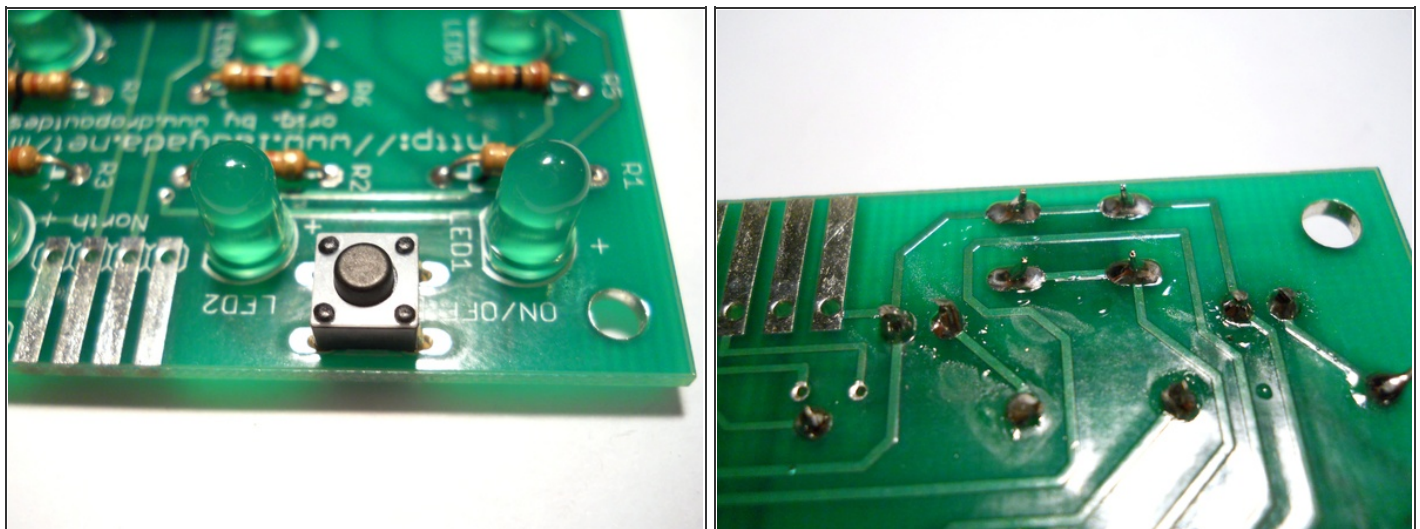
- In the location marked **ON/OFF**, press the push-button switch down into the PCB. It should snap into place, and it does not matter in which direction you insert it.

- Solder this switch in.

Step 9 — Insert the Chip

- There is a notch on the chip, so make sure that you match up the notch on the socket with the notch on the chip.

- You may need to bend the leads on the chip slightly in order for it to fit into the socket.

- Press it into the socket and it should fit securely.

Step 10 — Inserting the Battery Holder
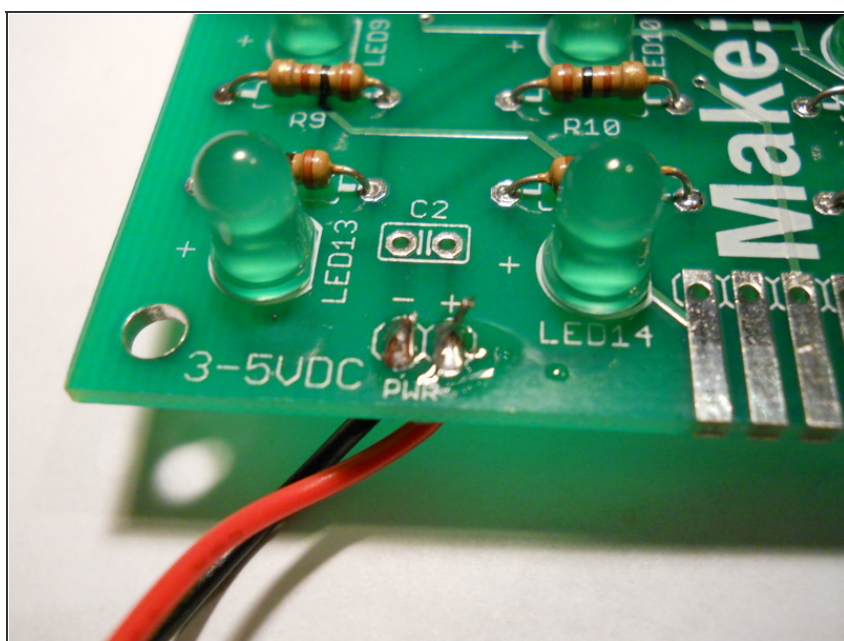
- If you feel like the battery holder's leads are too long, feel free to shorten them...but not too much.

- You will need to tin the leads with solder if you do this, however.

- The red wire should go into the hole marked with the "+", while the black wire should be inserted into the hole marked with the "-".

- You can insert the leads from the bottom up if you want the board to look a little cleaner.

Step 11 — Test it out!
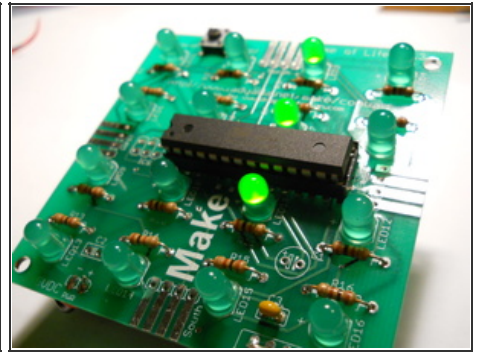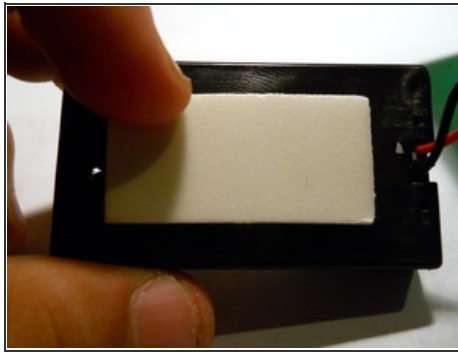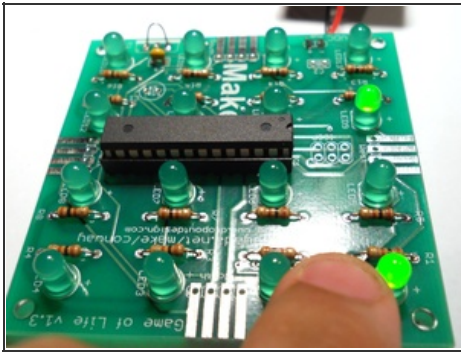
- Insert two AA batteries into the battery holder.

- You will see the game start. If you press the ON/OFF button, it will reset into a checkerboard pattern.

- Place some sticky tape on the back of the battery holder, and press it on to the back of the PCB.

- Now you can keep it on your desk and play the Game of Life!

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